The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-7 (Cancelled)

8. (Currently Amended): A lithography apparatus configured to form a pattern onto a semiconductor device, comprising:

a guide beam;

a translational structure having a work piece holder, the translational structure surrounding the guide beam such that the weight of the translational structure is supported by the guide beam, wherein the guide beam permits the translational structure to freely move substantially in only one degree of freedom along the guide beam;

wherein the guide beam includes a first vacuum chamber and a second vacuum chamber, the first vacuum chamber being a high vacuum chamber and the second vacuum chamber being a lower vacuum chamber; and

the translational structure includes a first airbearing structure and a reticle plate, the first airbearing structure being arranged to be in fluid communication with the first vacuum chamber and the second vacuum chamber.

9. (Original): A lithography apparatus according to claim 8 wherein the guide beam includes four contact sides, and the first airbearing structure includes air pads arranged to substantially contact each of the four contact sides.

10. (Currently Amended): A lithography apparatus according to claim 8 wherein the guide beam is a first guide beam, the lithography apparatus further including a pair of second guide beams arranged substantially perpendicular to the first guide beam, ~~to permit movement of the~~, wherein the second guide beams are arranged to carry the first guide beam to permit positioning the work piece holder within two degrees of freedom.

a second airbearing structure, the second guide beam being at least partially disposed within the second airbearing structure, the second airbearing structure further being substantially rigidly coupled to the first guide beam, wherein the second airbearing structure includes air pads arranged to substantially contact two sides of the four sides of the second guide beam, the two sides being opposing sides of the second guide beam.

11. (Previously Presented): A scanning apparatus for use in a lithography system, the scanning apparatus comprising:

a first guide beam, the first guide beam including a first vacuum chamber and a second vacuum chamber the first vacuum chamber being a high vacuum chamber and the second vacuum chamber being a lower vacuum chamber; and

a translational structure having a work piece holder and a first airbearing structure, the translational structure being arranged to move linearly with respect to the first guide beam, the translational structure surrounding a portion of the guide beam such that the weight of the translational structure is supported by the guide beam, wherein the first airbearing structure is arranged to be in fluid communication with the first vacuum chamber and the second vacuum chamber.

12. (Original): A scanning apparatus according to claim 11 wherein the first guide beam includes four contact sides, and the first airbearing structure includes air pads arranged to substantially contact each of the four contact sides.

13. (Original): A scanning apparatus according to claim 11 wherein the first guide beam is at least partially disposed within the first airbearing structure.

14. (Original): A scanning apparatus according to claim 13 further including a linear motor, the linear motor including a coil and a magnet track structure.

15. (Original): A scanning apparatus according to claim 14 wherein the coil is coupled to the first airbearing structure, wherein the coil is arranged to move within the magnet track structure to cause the translational structure to move linearly with respect to the first guide beam.

16. (Original): A scanning apparatus according to claim 15 wherein the coil includes a first portion and a second portion, the first portion being arranged above the first airbearing structure, the second portion being arranged below the first airbearing structure, wherein a centerline of the coil between the first portion and the second portion is arranged to substantially pass through a center of gravity associated with the translational structure.

17. (Original): A scanning apparatus according to claim 11 wherein the work piece holder is formed from ceramic.

18. (Previously Presented): A scanning apparatus according to claim 11 further including:

a second guide beam, the second guide beam including four sides, the second guide beam being substantially perpendicular to the first guide beam, wherein the second guide beam is not arranged to directly contact the first guide beam; and

a second airbearing structure configured to operate while exposed to the vacuum environment, the second guide beam being at least partially disposed within the second airbearing structure, the second airbearing structure further being substantially rigidly coupled to the first guide beam, wherein the second airbearing structure includes air pads arranged to substantially contact two sides of the four sides of the second guide beam, the two sides being opposing sides of the second guide beam.

19. (Original): A scanning apparatus according to claim 18 further including:

a third guide beam, the third guide beam including at least four sides, the third guide beam being substantially parallel to the second guide beam; and

a third airbearing structure, the third guide beam being at least partially disposed within the third airbearing structure, wherein the third airbearing structure is coupled to the first guide beam such that the translational structure may exhibit a yawing motion.

20. (Original): A scanning apparatus according to claim 19 wherein the third airbearing structure is substantially rigidly coupled to the first guide beam, and the third airbearing structure includes air pads arranged to contact two sides the four sides of the third guide beam, wherein the two sides are opposing sides of the third guide beam.

21. (Original): A scanning apparatus according to claim 19 wherein the third airbearing structure is coupled to the first guide beam with a three-degree-of-freedom joint, and the third airbearing structure includes air pads arranged to contact each of the four sides of the third guide beam.

22. (Original): A scanning apparatus according to claim 21 wherein the three-degree-of-freedom joint is a yaw flexure.

23. (Currently Amended): A scanning apparatus according to claim 19 wherein the second guide beam includes a third vacuum chamber and a fourth vacuum chamber, the third vacuum chamber being a high vacuum chamber and arranged to be in fluid communication with the first vacuum chamber of the first guide beam through the second airbearing structure, the fourth vacuum chamber being a low vacuum chamber and arranged to be in fluid communication with the second vacuum chamber of the first guide beam.

24. (Currently Amended): A scanning apparatus according to claim 23 wherein the third guide beam includes a fifth vacuum chamber and a sixth vacuum chamber, the fifth vacuum chamber being a high vacuum chamber and arranged to be in fluid communication with the first vacuum chamber of the first guide beam through the third airbearing structure, the sixth vacuum chamber being a low vacuum chamber and arranged to be in fluid communication with the second vacuum chamber of the first guide beam.

Claims 25-27 (Cancelled)

28. (Currently amended): A lithography apparatus configured to form a pattern onto a semiconductor device, comprising:

a guide beam, the guide beam including a first vacuum chamber and a second vacuum chamber that operate at different vacuum levels, the guide beam including four contact sides;

a translational structure surrounding the guide beam such that the weight of the translational structure is supported by the guide beam, the translational structure having a reticle plate and an airbearing structure, the airbearing structure being arranged to be in fluid communication with the first vacuum chamber and the second vacuum chamber, the airbearing structure including air pads arranged to substantially contact each of the four contact sides of the guide beam, wherein the guide beam permits the translational structure to freely move substantially in only one degree of freedom along the guide beam.

29. (Previously presented): The lithography machine of claim 11, wherein the work piece holder is a reticle plate.

30. (Currently amended): An electron beam projection lithography system comprising:

an illumination column;

a projection column, the projection column being separated from the illumination column by a distance; and

a stage structure including,

a first guide beam, the first guide beam including a first vacuum chamber and a second vacuum chamber that operate at different vacuum levels and four sides;

and a translational structure and a reticle holder through which an electron beam may pass from the illumination column to the projection column, the reticle holder being arranged to be manipulated within the distance, the translational structure surrounding the guide beam such that the weight of the translational structure is supported by the guide beam, wherein the guide beam permits the translational structure to freely move substantially in only one degree of freedom along the guide beam, the translational structure further including an airbearing structure arranged to cause the translational structure to buoyantly float relative to the guide beam

a second guide beam, the second guide beam including a third vacuum chamber and a fourth vacuum chamber and four sides, the second guide beam being substantially perpendicular to the first guide beam, wherein the second guide beam is not arranged to directly contact the first guide beam; and

a second airbearing structure, the second guide beam being at least partially disposed within the second airbearing structure, the second airbearing structure being coupled to the first guide beam, the second airbearing structure including air pads arranged to substantially contact two sides of the four sides of the second guide beam, the two sides being opposing sides of the second guide beam,

wherein the third vacuum chamber is arranged to be in fluid communication with the first vacuum chamber of the first guide beam through the second airbearing structure, the fourth vacuum chamber being arranged to be in fluid communication with the second vacuum chamber of the first guide beam;

a third guide beam, the third guide beam including a fifth vacuum chamber and a sixth vacuum chamber and at least four sides, the third guide beam being substantially parallel to the second guide beam; and

a third airbearing structure, the third guide beam being at least partially disposed within the third airbearing structure, the third airbearing structure being coupled to the first guide beam with a three-degree-of-freedom yaw flexure such that the translational structure may exhibit a yawing motion, the third airbearing structure including air pads arranged to contact each of the four sides of the third guide beam,

wherein the fifth vacuum chamber is arranged to be in fluid communication with the first vacuum chamber of the first guide beam through the third airbearing structure, the sixth vacuum chamber being arranged to be in fluid communication with the second vacuum chamber of the first guide beam.

31. (Previously presented): An electron beam projection lithography system according to claim 30, wherein the reticle holder is cantilevered from the translational structure the stage structure further including:

a magnet track; and

a coil, the coil being coupled to the translational structure, wherein the coil is arranged to move linearly within the magnet track such that the coil is substantially always within the magnet track and movement of the coil causes the airbearing structure to move linearly over the guide beam.

32. (Previously presented): An electron beam projection lithography system according to claim 30 wherein the second guide beam is coupled to the first guide beam such that the first guide beam is translationally moveable with respect to the second guide beam, wherein the third guide beam is coupled to the first guide beam such that the third guide beam is arranged to support translational movement and yawing movement of the first guide beam.